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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/824,750	04/15/2004	Chao -Hsiung Wang	TSMC2003-1412(N1280-00280	7047

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DUANE MORRIS LLP
IP DEPARTMENT (TSMC)
30 SOUTH 17TH STREET
PHILADELPHIA, PA 19103-4196

EXAMINER

OHIRA, MARISSA A

ART UNIT PAPER NUMBER

2851

DATE MAILED: 07/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/824,750

Applicant(s)

WANG ET AL.

Examiner

Marissa A. Ohira

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 10-24, 28-33 is/are rejected.
- 7) ☒ Claim(s) 9, 25-27 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 07/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 1-3, 8, 10-12, 15, 18, 20-22, 29, 31, and 32 are rejected under 35

U.S.C. 102(e) as being anticipated by Zhang et al. (heretofore referred to as "Zhang")

(US 2005/0161644).

Regarding claims 1-3, 15, and 28 Zhang discloses:

- a) A radiation source providing an electromagnetic radiation with a wavelength of about 193 nm or less (Abstract, lines 6-7);
- b) At least one lens (para. 3, lines 1-3) for transmitting a predetermined radiation from the radiation source on a predetermined substrate;
- c) A fluid volume in contact with the lens on its first end and with the substrate on its second end (para. 3, lines 1-3),
- d) Wherein the fluid volume has a molar concentration of hydroxyl ions between about 10^{-7} mole per liter and about 10^{-1} mole per liter (para. 6; it is known in chemistry that the addition of amines, ammonium salts, and urea raise the pH level of a solution).

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Regarding claims 8, 20, and 29, Zhang discloses wherein the fluid volume includes de-ionized water (para. 7, lines 1-5; de-ionized water falls under the category of an aqueous fluid).

Regarding claims 10-12, 21, 22, 31, and 32, Zhang discloses wherein the molar concentration of hydroxyl ions is less than about 10^{-1} mole per liter, between about 10^{-3} mole per liter and about 10^{-5} mole per liter, between about 10^{-5} mole per liter and 10^{-7} mole per liter (para. 6; it is known in chemistry that the addition of amines, ammonium salts, and urea raise the pH level of a solution; the pH will depend on the concentration of the additives, and can be mixed in such a way to produce the desired pH).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 13, 14, 22, 23, and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang (US 2005/0161644).

Regarding claims 13, 14, 22, 23, and 33, Zhang discloses the claimed invention, but lacks wherein the substrate has a radiation sensitive material and wherein the substrate is a semiconductor substrate material with a photoresist material formed thereon. However, it would have been obvious to one having ordinary skill in the art at the time invention was

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made to place a radiation sensitive material on the substrate, a form of which may be a semiconductor substrate with a photoresist layer, since one of the common uses of a lithographic system is the production of the semiconductor devices, which are formed on a semiconductor substrate with a photoresist layer.

4. Claims 4, 5, 16, 17 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang (US 2005/0161644).

Regarding claims 4, 5, 16, 17, and 30, Zhang discloses the claimed invention, but lacks wherein the lens has a numerical aperture size between about 0.75 and 0.85, and wherein the lens has a numerical aperture size between about 0.85 and 1.05. It would have been obvious to one having ordinary skill in the art at the time invention was made to chose lens with a numerical aperture size that falls within the ranges cited above, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

5. Claims 6 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang (US 2005/0161644) in view of Li et al. (heretofore referred to as "Li") (US 2005/0133688).

Regarding claims 6 and 18, Zhang discloses the claimed invention, but lacks wherein the lens is made of silicon oxide. Li discloses a layer of silicon oxide on a lens (Abstract). It

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would have been obvious to one having ordinary skill in the art at the time invention was made to use silicon oxide as a lens material since it increases the effective focal length of the lens (Abstract).

6. Claims 7 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang (US 2005/0161644) in view of Pierrat (US 2003/0215616).

Regarding claims 7 and 19, Zhang discloses the claimed invention, but lacks wherein the lens is made of calcium fluoride. Pierrat discloses the use of calcium fluoride as the material of a lens (para. 44, lines 3-6). It would have been obvious to one having ordinary skill in the art at the time invention was made to make a lens out of calcium fluoride since it is a transparent material, therefore minimally absorbs the radiation (para. 44, lines 3-6).

Allowable Subject Matter

7. Claims 9, 25, 26, and 27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. Regarding claim 9, none of the prior art discloses wherein the fluid volume includes metal hydroxide.

9. Regarding claim 25-27, none of the prior art discloses wherein the fluid volume includes NaOH, CaOH, or KOH in aqueous solution.

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Conclusion

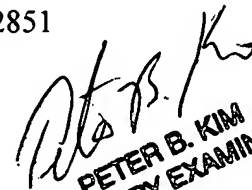
10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marissa A. Ohira whose telephone number is (571) 272-8898. The examiner can normally be reached on Monday-Friday, 9AM-5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on (571) 272-2258. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Marissa A Ohira
Examiner
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July 21, 2006


PETER B. KIM
PRIMARY EXAMINER